

CHEVRON RICHMOND REFINERY

TENTATIVE ORDER AND NPDES PERMIT

REQUEST FOR *COMPLIANCE SCHEDULE* AND DEMONSTRATION OF INFEASIBILITY TO ACHIEVE IMMEDIATE COMPLIANCE WITH CALCULATED EFFLUENT LIMITATION FOR **Cadmium**

Executive Summary

Pursuant to discussions with staff and to §2.1 of the SWRCB's *Policy for Implementation of Toxics Standard for Inland Surface Waters, Enclosed Bays, and Estuaries of California* [the "SIP"], Chevron submits as an addendum to its NPDES permit application a request for a compliance schedule and Chevron's documentation that it is infeasible to meet the final limits for cadmium proposed in the RWQCB's tentative order.

Infeasibility Demonstration.

In support of its request, Chevron submits the following demonstration that it is infeasible to achieve immediate compliance with of 11.02 ug/L AMEL, and 22.11 ug/L MDEL for CADMIUM

As defined in the SIP, infeasible means

“not capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors”

In this case, the SIP defines a “reasonable period of time” to be “immediate.” Therefore, in cases where, as here, the actions needed to achieve compliance could not be implemented by the permit’s effective date, they could not be completed within a reasonable period of time. In addition to this timing factor, possible actions to achieve compliance must be evaluated in light of the defined factors to determine their feasibility.

Staff has calculated a proposed final Water Quality Based effluent limit of 11.02 ug/L AMEL, and 22.11 ug/L MDEL. Chevron's performance history relating to this constituent reflects that Chevron's effluent does not meet this limit. Further, as explained in greater detail below, Chevron has undertaken a variety of efforts to date to reduce its discharge loading as much as possible and cannot achieve immediate compliance with the proposed final limits for the following reasons:

- Source of the contaminant is currently unknown
- We do not currently have a complete understanding of the chemistry, speciation, and fate of the contaminant in our treatment system and need more time to develop this understanding before we design effective measures to improve performance
- If any major projects were to be generated as the result of identifying additional practical treatment or source control technologies, we would have to go through a permitting process and might trigger CEQA and an environmental impact analysis.
- A detailed program to develop alternative feasibility technologies may be required, as outlined below.

Given the efforts to date, it is unclear what additional actions and measures may be necessary to meet that limit. A number of steps will be needed to determine what actions may be necessary and feasible in order to achieve compliance with this limit. Those steps will involve additional studies to evaluate future options, and those studies may demonstrate that new technology or new methods are necessary, appropriate and feasible. For example, Chevron may evaluate options, using criteria such as the following:

- Known, demonstrated technology that is available and has been demonstrated in refineries or related industries;
- Ability to achieve required effluent levels;
- Ability to pilot or demonstrate the technology in Chevron's plant;
- Implementation time for a given technology;
- Feasibility and cost effectiveness.

Certainly, carrying out these steps will be costly and time-consuming and may require additional environmental analyses and permits. In any case, they can not be completed and implemented in time for this permit to go into effect.

For the reasons discussed above, Chevron believes it is infeasible to achieve immediate compliance with the proposed final effluent limit for CADMIUM.

Staff has proposed a WQBEL for cadmium in the tentative order of 11.02 ug/L average monthly effluent level (AMEL) and 22.11 ug/L maximum daily effluent level (MDEL). Chevron has almost no data from which to predict future performance, therefore we can not confidently predict that we can comply with the proposed final limits.

Our three-year data submittal indicated that cadmium was not detected 35 out of 36 times and was detected once at 9.1 ug/L, which is above the water quality objectives calculated by the permit writer assuming a hardness of 138 ug/L. Chevron disputes that this is an appropriate hardness for an estuarine receiving water (in which calcium and magnesium typically occur at hundreds of mg/L and hardness at thousands), but if the limits stand as proposed, we can not expect compliance.

In the following sections Chevron will document:

- A. Diligent efforts made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts;
- B. Source control and/or pollution minimization efforts currently underway or completed;
- C. A proposed schedule for additional or future source control measures, pollution minimization actions, or waste treatment;
- D. A demonstration that the proposed schedule is as short as practicable.

A. Pollutant Levels and Sources.

Final Limits. The proposed WQBEL final limits for cadmium are:

AMEL: 11.02 ug/L

MDEL: 22.11 ug/L

Effluent data:

Cadmium is monitored monthly in refinery effluent. The data show:

- 35 out of 36 times, cadmium was not detected
- The maximum observed value was 9.1 ug/L

Because we have almost no historical performance data from which to predict future performance, we can not be confident that we can comply with these limits.

Sources:

Cadmium is not a metal typically associated with refineries. When EPA surveyed refineries while developing effluent guidelines for Best Available

Technology (BAT), they found cadmium was typically < 1 ug/L. Cadmium is a trace contaminant in crude oils, at an order of magnitude level of 10 ppb. Occasionally cadmium is an alloy in certain metal fittings. Chevron is not aware of any cadmium fittings.

We have never considered cadmium a problem in our effluent, and until the past few days neither has RWQCB staff. A sudden finding of Reasonable Potential for cadmium comes as a shock to us. Therefore, we have not yet had time to perform an exhaustive search for sources.

B. Minimization / Reduction Practices:

Chevron operates a biological treatment system consistent with EPA BAT technology. Although biotreatment is not thought of as a traditional metals treatment technology, to some degree it does remove metals (either because they are micro-nutrients or because they are occluded to biological floc). Thus we anticipate some traces of cadmium are removed in the effluent treatment system, when any is present in the influent.

The level of cadmium in refinery effluents (e.g., <1 ug/L) is generally orders of magnitude lower than traditional technologies for metals treatment are expected to achieve.

C. Pollution Minimization Actions and Schedule

Chevron proposes the following schedule for additional measures:

- Chevron has developed a schedule of action items that would be necessary to come into compliance with the WQBELs. As demonstrated above, there is a great deal of uncertainty about what actions are possible, appropriate and feasible, so the schedule of compliance would not define the specific action items but rather the steps that would be taken to develop the measures needed to come into compliance.
- Develop a study proposal by 12/31/01 and submit it to RWQCB staff. This study proposal would address such issues as source location, generation, quantity, potentially speciation, investigation potential improvements to cyanide control at process units, and investigation of treatment of refinery wastewater.
- Step 1. Based on data collected through year-end 2002, develop a proposal for a study plan by 06/30/03 and submit it to RWQCB staff.
- Step 2. Potentially implement a cost-effective plan by 09/30/03 upon Staff approval.
- Step 3. Report progress annually by 09/30/04 and 09/30/05.
- Step 4. Complete the work defined by the plan by 03/31/06.
- Step 5. Submit completion report by 6/15/06.

Chevron will conduct any source control or pollution minimization studies in accordance with California Water Code §13263.3 and §2.1 of the SIP. In accordance with CWC §13263.3, this work will proceed outside of the NPDES permit itself, and will not be a condition of this permit.

D. Why schedule is as short as practical.

Under the circumstances involved here, the five-year compliance schedule is as short as possible. Chevron has proposed the use of project management principles to develop and execute a plan to come into compliance within the allotted time frame. At the current time, there has not been enough scoping of the issue to identify all the potential alternatives and evaluate their feasibility for coming into compliance with the final effluent limits calculated by the RWQCB staff. Therefore, the five-year compliance schedule allowed by the SIP is appropriate and is as short as possible.